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Discourse Prominence Induces Semantic Change: Evidence from Chinese

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Abstract
I propose four stages in a semantic bleaching process of the Chinese numeral nominal phrase, da-NumP. This division of stages is based on the chronological order in which the first attested examples of each stage arise. The first stage is a lexical use, in which the morpheme da is a lexical modifier denoting the property of bigness. In the second stage, da loses its lexical status and functions as a ranking operator. More specifically, in the form [Num da N], N denotes the quantificational domain/the restrictor of a quantifier. Da combines with N and the numeral Num to rank all the members within the domain of N relative to an implicit scale, and points to members that are ranked on the upper range/bound of that scale. Combined together, [Num da N] denotes the top ||Num|| number of entities along that scale. This ranking reading is retained in a later development stage. Meanwhile, at this stage, the noun N expresses a further update property exclusively about the top-ranked entities, and ousts the domain of quantification from surface realization. In the final stage, the ranking reading is lost, replaced by a definite reading. I conclude my paper with a discourse-based theory of the bleaching process, in which I argue that the transition between stage 3 and stage 4 can be seen as triggered by the shift in relative discourse prominence within the elements of the da-NumP.

Discourse Prominence Induces Semantic Change: Evidence from Chinese

Jun Chen*

1 Introduction

This paper examines a series of semantic change processes in a hitherto unnoticed Chinese numeral nominal phrase construction. In Chinese, a numeral nominal phrase (henceforth NumP) does not only have a numeral, but also an obligatory classifier (Li and Thompson 1981, Cheng and Sybesma 1999, Simpson et al. 2011). The form of a NumP is as follows (Deane 1991):

(1) [Num Classifier NP] (Num represents the numeral)

In comparison, the novel numeral phrase construction, under investigation in this paper, bears the form in (2):

(2) [Num *da* N]

From now on, such numeral phrase construction is called *da*-NumP. When the NP in a canonical NumP dominates a bare noun, the form of (1) looks similar to that of (2). They differ in that the former has a classifier intervening between the numeral and the bare noun; in the latter, it is the morpheme *da* that intervenes. Below are some examples of a NumP in juxtaposition with a *da*-NumP:[1]

(3) a. San ming zhongfeng
Three CLF center
'Three centers'
b. San da zhongfeng
Three DA center
'(rough translation) The three centers'

(4) a. Si ben ming-zhu
Four CLF renown-book
'Four famous books'
b. Si da ming-zhu
Four DA renown-book
'(rough translation) The four great books'

In view of the above similarities, I need to show why *da*-NumPs are really a different construction. We can see this more clearly in a number of environments. First of all, no modifiers may be inserted between *da* and the noun in a *da*-NumP, whereas this possibility is allowed in a canonical NumP. In (5a), an AdjP modifier intervenes between a classifier and a noun, modifying the noun. In (5b), when the same adjectival phrase *qiangzhuang de* 'muscular/strong' appears in between *da* and a noun, the phrase is unacceptable.

(5) a. Si ming [qiangzhuang de zhongfeng]
Four CLF muscular REL center
'Four muscular/strong centers'

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[1]Chinese has a closed set of classifiers. Classifiers are chosen based on the nouns that follow them. For example, in (3), the noun *zhongfeng* means centers. In this case, a special classifier, *ming*, is chosen to specifically point to humans. In (4), the noun denotes books, so a classifier usually dedicated to non-animate, paper-like entities are applied in this case, which is *ben*.

b. *Si da [qiangzhuang de zhongfeng]
Four DA muscular REL center

Furthermore, in a canonical NumP, the head NP may be conjoined, as seen in (6a). In contrast, this possibility is ruled out in a *da*-NumP, illustrated in (6b).

(6) a. Si bu [beiju he xiju]
Four CLF tragedy CONJ comedy
'Four tragedies and comedies'
b. *Si da [beiju he xiju]
Four DA tragedy CONJ comedy

It might be worth looking whether the NP slot within the *da*-NumP construction is frozen. Yet as the examples given in this paper show clearly, the NP slot is completely productive, allowing an open set of bare nouns to occur in it. What is going on, I believe, is that *da*-NumPs impose a certain structural constraint, such that only lexical nouns, not phrasal NPs, are able to occur in the position following *da*.

While the idiosyncratic nature of *da*-NumPs allows us to say that they are distinct from canonical NumPs, in what follows, I focus on the semantic aspects of *da*-NumPs instead. Specifically, I identify a semantic bleaching process (Hopper and Traugott 2003) for *da*-NumPs. By surveying the historical development of this construction over the past two millennia, I show that the bleaching process comprises four stages. Furthermore, I argue that this multi-stage process is best characterized in terms of a grammaticalization pathway (Heine and Kuteva 2002), the evolution of which is conditioned by the discourses status of the syntagmatic elements within the construction.

As such, this paper has two contributions. The first one is a theoretical one, in which I argue that a bleaching trajectory provides evidence for the correlation between the grammaticization of a particular morpheme and the demoting (or de-focussing) of that morpheme's discourse prominence status (see also Givón 1979, Boye and Harder 2012). The second is an empirical one. My paper is the first systematic and detailed study of *da*-NumPs in the literature. Although no linguists (to the extent of which I am aware) have looked into *da*-NumPs to date, its use is widespread in oral Chinese, frequently showing up in newspapers, everyday conversations, online forums, social networks and other media. A natural choice is then to exploit the productivity in the oral register and make use of the corpus source. Our historical Chinese data are taken from the Peking University Center for Chinese Linguistics (CCL) Historical Chinese Corpus, one of the most comprehensive open-access Chinese language diachronic corpora. This database covers written records of Chinese from 500 BCE till the beginning of the 20th century. Our contemporary Chinese data are culled from the CCL Contemporary Chinese Corpus and Google.

The rest of this paper is structured as follows: Section 2 discusses, in a chronological order, the four stages involved in the historical development of *da*-NumPs. Section 3 presents discourse factors that provide support for the existence of a bleaching pathway. Section 4 concludes the paper.

2 Uses of the *da*-NumP

Below, I identify four stages of *da*-NumPs, based on the chronological order in which the first attested examples of each stage arise. The first stage is a *lexical* use, by which I mean that the morpheme *da* is a lexical modifier denoting the property of bigness. In the second stage, *da* loses its lexical status and functions as a *ranking operator*. More specifically, in the form [*Num da N*], the noun N denotes the quantificational domain (*i.e.* the restrictor of a quantifier). *Da* combines with N and the numeral Num to rank all the members within the domain of N relative to an implicit scale, and points to members that are ranked on the upper range/bound of that scale. Combined together, [*Num da N*] denotes the top |*Num*| number of entities along that scale. This ranking reading is retained in the third stage. Meanwhile, in the third stage, N expresses a further *update* property exclusively about the top-ranked entities, and ousts the quantificational domain from surface realization. In the final stage, the ranking reading is lost, replaced by a *definite* reading.

2.1 The Lexical Use

The earliest attested use of *da*-NumPs is illustrated by the examples in (7).

(7) a. Si *da*-zui (*Sriptures of the Great Peace*, 126–145 A.D.)
Four big-sin
'The four grave sins'
b. Si *da*-hai (*Translations by Monk Zhiqian*, 222–252 A.D.)
Four big-sea
'The four big seas'
c. Si *da*-guo (*Chronicles of Huayang*, 348–354 A.D.)
Four big-country
'The four big countries'
d. Si *da*-zu (*Translated Buddhist Texts from Beiliang*, 397–439 A.D.)
Four big-tribe
'The four large tribes'

Example (7a) describes four severe sins, committing any of which is punishable by death, according to the admonition of a Buddhist classic. (7b) refers to four large seas that were already chronicled in Chinese geographical records at that time. (7c) talks about four militarily superior countries. Finally, in (7d), the *da*-NumP is about four powerful tribes in a vassal state, the local politics of which were dominated by these tribes.

Based on the meanings expressed in (7), it is plausible to consider the morpheme *da* at this stage to have a lexical status. Specifically, the lexical *da* expresses both the prototypical sense of physical bigness (as in 7b) as well as other derived senses of bigness (as in (7a, c, d)). Compare (7) with (8), taken from the entry *big* in the online Oxford English Dictionary:

(8) a. Large, as in size, height, width, or amount:
a big house; *a big quantity*.
b. Of major concern, importance, gravity, or the like:
a big problem.
c. Outstanding for a specified quality:
a big liar; *a big success*.
d. Important, as in influence, standing, or wealth:
a big man in his field; *a big shot*

The *da* in (7b) corresponds to the primary/prototypical sense in the English (8a). The various derived senses in (7a), (7c) and (7d) correspond to (8b–8d). In sum, by analyzing each of the use in the above examples, I find that the shades of bigness involved here are not unlike the senses of *big* in English. Furthermore, these senses of bigness can be attested in the same CCL corpus where *da* occurs outside of the construction of the *da*-NumP. Consequently, I consider the stage as represented by examples (7a–d) to be the lexical stage.

2.2 The Superlative Use

I argue now that, at a later stage, *da* denotes a superlative operator. Evidence for a (superlative) ranking reading is strongest in the contexts where explicit ranking processes are taking place.

Below, (9a) refers to four Buddhist Asura deity figures that are considered the primary protectors among all the Asuras, based on Indian and Chinese Buddhist classics. (9b) refers to four Buddhist monks that had established themselves as the most inspiring monks during the formation of China's home-grown Buddhism. In (9c), the name *si da shuyuan* 'four big academies' is a cover term for four academies/colleges that enjoyed the highest prestige of their kind at that time. Finally, (9d) picks out the top three most popular southern-style drama plays, as voted by the public. The southern-style drama is a genre of plays prevalent in the Yuan dynasty (14–17th century).

(9) a. Si da axiuluo (*The Complete Texts of the Liang Dynasty*, 502–557 A.D.)
Four DA Asura

'The big four Asuras (Buddhist protector deities)'

b. Si da chanshi (*Life of Shenxiu*, 676 A.D.)
Four DA monk
'The big four monks'

c. Si da shuyuan (*Zen Buddhism in China*, 1252 A.D.)
Four DA academy
'The big four academies'

d. San da nan-xi (*Anthologies of Selected Southern Dramas*, 1559 A.D.)
Three DA south-drama
'The big three Southern-style Dramas'

In each of (9a–d), the head N denotes a domain of quantification (*i.e*. a background set from which a subset of top |*Num*| referents are picked out). For example, in (9a), the N denotes a set of Asura deities, and [*Num da*] picks out a subset of four Asura deities from this N-set.

One central characteristic in these ranking processes is that a context-appropriate scale imposes a strict and total order on the domain of quantification. Therefore, it is decidable which referents are top-ranked on the scale of ranking. One piece of evidence for the claim that the use of *da*-NumPs requires a strict and total order is that it is extremely common to find competing claims for the membership of a *da*-NumP. For example, people have been constantly arguing for which regional cuisines (there are many in China!) should be the top four most prestigious cuisines, and at least eight regional varieties have presented themselves as viable candidates at one time. Controversies such as this one reveal that, for a *da*-NumP used in this stage, members within the domain of quantification are ranked against each other on the context-relevant scale.

Formally, a superlative use of *da*-NumPs has the following denotation:

(10) Let D denote the domain of individuals; C ⊆ D denote a contextually relevant subdomain of individuals that is relativized to context c; *R* denote a predicate variable ranging over the domain of graded properties of individuals (Cresswell 1977, Kennedy and McNally 2005); $d \in \{\mathbb{R} | 0 \leq d \leq 1\}$ denote a degree variable, and $n \in \mathbb{N}$ denote a natural number.
Then
$[\![Num\ da\ N]\!]^{M,g,c} = \{X \subseteq C \mid |X| = [\![\text{Num}]\!]^{M,g,c}$ and $\exists d_{xmin}[\exists x_{min} \in X[[\![N]\!]^{M,g,c}(x_{min})(d_{xmin})$ and $\forall x \in X[\exists d[[\![N]\!]^{M,g,c}(x)(d)$ and $d \geq d_{xmin}]$and $\forall x \notin X[\exists d[[\![N]\!]^{M,g,c}(x)(d) \rightarrow d < d_{xmin}]]\}$

This says that a *da*-NumP denotes a subset X of C, with the cardinality of |Num|. Every element of X is in the extension of N (to some degree d), and there is a minimal degree d_{xmin} such that every element of X is in the extension of N to a degree equal to or greater than d_{xmin}, whereas every individual that is not in X is in the extension of N to a lesser degree than d_{xmin}, if it is in the extension of N at all. The strict and total order is thus captured.[2]

I thus establish that, while *da* in *da*-NumPs started off as a lexical material, later it developed into a superlative ranking operator, such that the ranking reading is built into the semantics of *da*-NumPs.

2.3 The Scale-Setting Use

I now argue that the examples of (11) belong to a new stage. (11a) is attested in the Ming dynasty (1368–1644 A.D.). (11b) is a modern era use (circa. 1927). In general, corpus data suggest that this stage is a recent development.

(11) a. Si da qi-xiu
Four DA innovative-embroidery
'The Four Great Embroidery (Varieties)'

[2]Elsewhere in Chinese, there is a superlative operator, *zui*, which is equivalent to the English superlative operator *most*/*-est*. In contrast to *zui*, *da* cannot express a superlative meaning outside a *da*-NumP. I believe that the superlative meaning of *da* comes from the *da*-NumP construction. Therefore, we should not equate *da* with the superlative morpheme *–est* in English.

b. Jing-jü si da ming-dan
Peking-Opera four DA renown-dan.character
'The Four Famous Dan Actors of Peking Opera'

To understand that something more than ranking is involved in (11), we need to look at the contexts in which these *da*-NumPs are used. (12) is a modern day description of how (11a) came to be used and accepted. Similarly, (13) is the description of how (11b) came to be used.

(12) *" 'Si da qi-xiu'* (*The Four Innovative Embroideries*) *refers to the Su-embroidery of Jiangsu, the Xiang-embroidery of Hunan, the Yue-embroidery of Guangdong as well as the Shu-embroidery of Sichuan. They are generally accepted to be the most groundbreaking four subtypes among China's embroidery in terms of craftsmanship."*

(13) *" 'Jing-ju si da ming-dan'* (*The Peking Opera's Four Famous dan*) *is normally taken to mean the top four actors who played the role of dan in Peking Opera, as selected by the Beijing-based Shuntian Daily in the year 1927* (*The 16th year on the Republic calendar*)*."*

In each of these two expressions, the ranking reading is clearly retained. Yet there is one additional aspect in (11a–b). In the pure (superlative) ranking reading, I have argued that N denotes the quantificational domain. This is not the case for the Ns in (11a–b). In (11a), four top embroideries are picked out from all the varieties of embroideries in China. So the N *qi-xiu* 'innovative embroideries' refers to the four *top* ones, not the background set of *any* embroideries (set of innovative embroideries ⊆ set of embroideries). In (11b), *ming-dan* 'renowned *dan*-actors' are picked out from the entirety of *dan*-actors. In other words, the Ns in these *da*-NumPs denote the top-ranked entities, not the background set.

Importantly, the choice of which noun to use in a *da*-NumP is sensitive to the scale that is employed in the ranking, so that N makes a particular scale explicit by denoting the subset of referents within the domain that bounds at the top end *of that scale*. For example, *qi-xiu* 'innovative-embroidery' shows that the subset of embroideries that are top-ranked within a background set of embroideries are those embroideries that are of high innovativeness. *Ming-dan* 'renowned-*dan*.actor' locates *dan*-actors on a scale of prestige, and denotes the subset that is of high prestige.

In (11), the Ns are compounds. Each noun is formed by combining a scalar modifier with a nominal sublexical head, where the head denotes the background set. The formation of scale-setting nouns is illustrated as follows.

Qi 'innovative'	*Xiu* 'embroidery'
Scalar Modifier	Domain
Ming 'renowned'	*Dan* 'dan-actor'
Scalar Modifier	Domain

Figure 1: Formation of scale-setting compound nouns.

But a scale-setting compound noun needs not be formed in this way. The examples in (14) have the same use as the previous examples in (11), but the head Ns are N-N compounds, and one of the N-parts serves the scale-setting function:

(14) a. Si da shu-sheng (*circa*. 1890 A.D.)
Four DA calligrapher-saint
'The Four Saints of Calligraphers'
b. San da di-xing (*circa*. 1910 A.D.)
Three DA emperor-star
'The Three Emperor Stars (Emperors of Stars)'

That is, both an A-N compound and an N-N compound can set the scale of ranking. A gradable adjectival component is able to map individuals within the extension of the head noun to a gradable property. Certain nouns are also able to do so. *A saint* means a person who reaches saint-hood. *An emperor* means a person who reaches king-hood/royal status. Without attempting to spell

out the semantic details here, I hypothesize that such nouns inherently take a scale in their denotations. For example, the extension of *a saint* is defined with regards to a scale, such that a saint is an individual that is mapped to a 'saint-level' degree, as opposed to other individuals that possess 'ordinary person-level' degrees. Essentially, *a saint calligrapher* means a calligrapher with the highest proficiency of calligraphy writing. If certain nouns require a gradable property to be built in their semantics in order to be properly interpreted, such nouns can participate in scale-setting compounding processes, by combining with another nominal part that denotes the background set.

Having established that compound nouns in *da*-NumPs in this stage serve to make the scales of comparison explicit, it needs to be stressed that this function is achieved only in conjunction with a ranking operation. Specifically, a scale-setting N is construed as being coreferential with the set of top entities picked out by the ranking process. Without the superlative semantics denoted by *da*, the compound N is still scalar, but the superlative meaning is missing.

For example, when in isolation the [A N] compound *qi-xiu* 'innovative-embroidery' denotes some embroideries that are innovative. The scalar *qi* 'innovative' expresses any value above a context-appropriate standard on a scale of innovative-ness (Kennedy and McNally 2005, Grano and Kennedy 2012, Rett 2015). Following von Stechow (1984), unmodified adjectival phrases are often assumed to contain a null degree morpheme *pos* (which stands for POSITIVE FORM) that relates the degree argument of the adjective to an appropriate standard of comparison (see also Bierwisch 1989). *Pos* encodes a standard which holds of a degree *d* just in case it meets a standard of comparison for an adjectival relation R with respect to a comparison class determined by the domain-restricted set C. This is illustrated in (15).

(15) $\llbracket pos \rrbracket = \lambda R \lambda x. \exists d$ [standard (d)(R)(C) and R(d)(x)]

That is, *qi-xiu* 'innovative-embroidery' means 'an embroidery that reaches a certain standard in its degree of innovative-ness'. This property holds insofar as the embroidery at hand reaches the context-defined comparison standard, and says nothing about whether other embroideries are more innovative or not, and how does this embroidery rank against others. When *qi-xiu* occurs in a *da*-NumP, the ranking process offers an immediate context under which the scalarity of the compound N is interpreted. *Si da qi-xiu* 'four DA innovative-embroidery' thus means: 'the top four (of embroideries), that is the innovative embroideries'. The standard for innovative-ness, hence, is aligned with the degree of innovativeness of the top four embroideries.

One piece of supporting evidence is that we are able to say the following:

(16) Ta shi ming-dan, dan bu-suan si da ming-dan.
She COP renown-dan.actor but NEG-count.as four DA renowned-dan.actor
'He is a famous (Peking Opera) *dan* actor, but is not one of the Four Dan-actors.'

In saying the first *ming-dan*, the standard is based on the immediate context. Normally, with a group of *dan* actors in mind, this standard could be the average value of renown/famous-ness for *dan* actors. Therefore, the first clause means the person under discussion is famous compared with an average *dan* actor. However, the second *ming-dan* embedded within the *da*-NumP is uttered with an updated standard, locating the standard on a degree that links only to the top four most famous *dan* actors. A *dan* actor can be more famous than average, but still not the top four most famous. Therefore, we see that the same noun can have both a regular scalar noun and a scale-setting noun use, and the two uses are distinct

The change from a pure superlative reading to a scalar reading is schematized as follows:

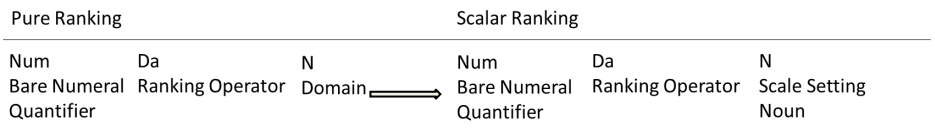

Figure 2: Transition between stages.

While both a pure ranking use and a scale-setting ranking use are witnessed today, the general tendency is for the pure ranking use to give way to the newer use. In modern corpora, pure ranking uses are mostly fixed expressions, with conventionalized references (dating back to some ancient ranking practices). By comparison, when similar rankings are created on the fly, the Ns in *da*-NumPs tend to take the form of a scale-setting noun. For example, (17a) was initially used to refer to the four most well-known prostitutes in an early dynasty in China. However, when a new ranking was held to pick out the most well-known prostitutes of the new era, the noun switched to a scale-setting one (*ji-nü→ming-ji* 'renowned-prostitute') in (17b), which refers to the top-ranked individuals only. (18) demonstrates a similar switch for the ranking of the most proficient calligraphers.

(17) a. Si da shi-ku (676–929 A.D.)
Four DA stone-grotto
'The big four grottos'
b. Si da ming-ku (1930 A.D.)
Four DA renowned-grotto
'The big four grottos'

(18) a. Si da shufa-jia (676–929 A.D.)
Four DA calligraphy-practitioner
'The four big calligraphers'
b. Si da shu-sheng (1890 A.D.)
Four DA calligrapher-saint
'The four big calligraphers'

2.4 The Non-Ranking Uses

Aside from the scale-setting use, another productive use in current Chinese is the non-ranking use. Example (19) is uttered in a context where the four friends are the only salient and relevant individuals. Under this context, we are looking for some emergent characteristic that these individuals commonly share, and we adopt such characteristic in an on-the-spot naming act.

(19) [Context: The speaker was introduced to four new friends. Noticing that they are all pretty brawny, the speaker uttered the following.]
Xing hui a! Si da zhuang-han.
Nice meet EXCL Four DA tough.guys
'Nice to meet you all! The Four Tough Guys!'

By calling them 'tough guys', the speaker means that they are tough compared to average people. In other words, N is not used as a scale-setting compound noun. This is evidenced by the following:

(20) A: Xing hui a! Si da zhuang-han!
Nice meet EXCL four DA tough.guy
'Nice to meet you, the four tough guys!'
B: #Wo-men suandeshang zhuang-han, dan bu shi si da zhuang-han.
We-PL count.as tough.guy, but NEG COP four DA tough-guy
'Well, we do count as tough guys, but we are not the four tough guys.'

Similarly, in (21), referring to the two football stars as 'the two superstars' is an emergent device used to refer to both footballers with one cover term, and it does not entail that the speaker is committed to ranking these two footballers as the top two among all the members in the team. Instead, what matters is the fact that these two footballers are involved in the scoring scenario. Other footballers are not relevant to the context.

(21) [Context: In a game between Real Madrid and another La Liga team, one Real star, James Rodriguez, sent out a nice pass to another star, Christiano Ronaldo, and Ronaldo delivered

the finishing touch. A Chinese sports anchorman provided the following during the live commentary]
Liang da jü-xing hezuo wancheng-le jinqiu.
Two DA big-star cooperate finish-PRF scoring
'The two superstars combined to contribute to the scoring!'

By the same token, in (22), the choice of the word 'scums' reflects the speaker's judgment of the three girls solely based on their behaviors, rather than based on the degrees of their behaviors in relation to other girls with similar traits.

(22) [Context: The speaker was listening to her friend complaining about three classmates that constantly went backbiting on her. The speaker blurted out the following advice]
Yihou ni dou bu yao zai li san da ren-zha le!
Afterwards you PRT NEG FUT again talk.to three DA person-scum PRF
'You should not talk a word to the three scums from now on!'

Importantly, the uses here are not ranking-based. Previously, I talk about a ranking reading as involving a total order imposed upon a domain set with regards the scale, such that each member of the set is ordered in relation to other members. None of the examples in (19–22) involves an ordering among referents. Moreover, whereas in the scale-setting ranking reading, the noun is defined as denoting properties that occupy the high end of the scale relative to the domain set (*e.g.* *ming-xiu* 'renown embroidery' versus the domain set *cixiu* 'embroidery'), in (19–22) the noun is chosen solely based on the common properties of the referents, with no reference to a domain set. Indeed, the use of *da*-NumPs in this stage presupposes the maximality of its referents, requiring that the referents are the maximal objects that satisfy the extension of N within the relevant contexts.

A further diagnostics is that since the noun is not chosen relative to a domain set, it does not need to refer to any range on a particular scale. As a consequence, nothing prevents a non-scalar noun from being used in a coinage such as *san da zhongfeng* 'three DA center'. Imagine you are talking about three salient basketball players, and you noticed that all of them happen to play the position of center on court, then you can felicitously utter this *da*-NumP to cover them all. There is no explicit scale to base on, and even if an implicit domain set of (all) players is assumed here, note that centers merely represent one subset of all players, but not on any end of a scale that can rank players against one another.

One more piece of evidence is that, in a ranking scenario, it would be common for people to dispute a particular claim about the relative ordering among the ranked entities. But without ranking, such disputes would be non-existent. As a matter of fact, in a non-ranking use, since each coinage of a *da*-NumP is made with regards to context-particular entities, one would expect that the same *da*-NumP be employed for different referents given different contexts. This is exactly the case with the examples such as (19), (20), and (22). For example, the same reference for 'The Four Tough Guys' in (19) can be readily used by the same interlocutors to refer to four different brawny guys on a different occasion. People will not challenge the use of the same *da*-NumP for different referents, because there is no ranking at stake.

The above evidence prompts us to analyze *da* as a definiteness marker (von Fintel et al. 2014). Semantically, the referents of a definite NP are argued to be the maximal objects that satisfy the denotation of N. As I have shown above, the examples in the non-ranking uses are reminiscent of this maximality.

3 A First Approximation to a Discourse-Based Theory

Following standard assumptions (Bundesen 1990, Sperber and Wilson 1986, Talmy 2007, Langacker 2008), I assume that, in all utterances, the parts conveying the prioritized message receive primary discourse prominence, and the parts conveying background messages are less prominent. In a pure ranking use, the process of picking out the top entities can be seen as an update process. Prior to the update, the discourse comprises a background set. Following the update, a subset of top-ranked entities is added to the discourse, in addition to the background set.

In the scale-setting use, apart from the ranking process, a second process of assigning a property to the newly picked out top-ranked entities are also in place. By characterizing Ns as nominal supplements, I am endorsing a dynamic view of supplements, where the supplement and the main clause (*i.e.* the at-issue content) form successive updates. More specifically, when a sentence about a particular discourse referent includes a nominal supplement, the content of the supplemental part is updated to the common ground CG_0, before the at-issue main clause updates its content to the already updated common ground CG_1 (AnderBois et al. 2011).

Accordingly, the discourse configuration following successive updates is reshuffled:

(23) a. The content of the nominal supplement represents one update, receiving secondary discourse status;
b. The content of the at-issue main clause represents a second update, receiving the primary discourse status;
c. The ranking process becomes further demoted, since the update processes don't access it and only operate on the top-ranked entities.

This causes the background set to be *ousted* (Traugott 1988) from surface realization. I believe when the background set disappears from surface realization, it ultimately loses its semantic content altogether: because it is not overtly realized, the only way for it to remain within the discourse is for us to attend to it by keeping it activated in our memory. Simultaneously, in cases where the *da*-NumP appears as a new discourse referent in a sentence, our memory must be responsible for maintaining a certain threshold level of attention for two updates: the update involving the at-issue content, as well as the update involving the supplement. If we further assume with the psycholinguistics literature (e.g. Deane 1991) that maintaining multiple centers of attention is hard for cognitive agents, it goes a long way towards explaining why the unrealized background set is unstable and prone to loss. Suppose that a cognitive agent construes *da* as a ranking operator, maintaining the ranking process in background levies significant processing burdens; on the other hand, if *da* is reanalyzed as *simply* marking the definite |*Num*| entities accessible from contexts, N ceases to function as nominal supplements. As such, there is only one update process left and the cognitive agent is exempt from the need to maintain multiple attention centers. Given a set of salient entities, we only need to keep track of the property assigned to them by the main clause. As such, this reanalysis occurs because it eases processing.

4 Conclusion

This paper provides a discourse-based theory that explains a cyclic bleaching process witnessed in a novel numeral phrase construction in Chinese. To recap, *da*-NumPs have four uses. The first use is a lexical use, where *da* is an adjectival modifier. Following this use, *da*-NumPs develop a ranking reading. Meanwhile, in the third stage, the noun in a *da*-NumP changes from denoting a background set to denoting the top-ranked entities. Once this stage is established, the semantic content of the background set becomes unstable and is prone to loss. At a later point, reanalysis occurs, in which *da*-NumPs no longer involve ranking.

In sum, this case study offers new insights into the theories that seek to explain semantic bleaching (Givón 1979, Hopper 1991, Hopper and Traugott 2003). Especially, it supports the functionalist view that grammaticalization does not correlate with discourse prominence defined in isolation. Instead, grammaticalization is believed to correlate with the relative levels of discourse prominence when comparing a grammatical word/category to its syntagmatic elements. Specifically, linguistic materials that are by convention demoted/de-focused tend to undergo reanalysis that causes their semantic contents to be bleached out.

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